

Abstract ID : 190

Title : Scat Tricks Reloaded: Using Feeding Trials and Computer Simulations to Reconstruct Pinniped Diet from Scat

Category : Ecology

Student :

Preferred Format : Oral Presentation

Abstract : The numbers and sizes of prey consumed by pinnipeds are increasingly being estimated from bones found in scats collected in the wild. However, the importance of any single prey can be overestimated if its bones are deposited in a succession of scats assumed to be from different individuals. Similarly, the importance of a single type of fish will be underestimated if bones are completely digested, or if bones from different prey items are contained in a single scat and assumed to be from a single prey item. One means of correcting for these potential biases is to derive correction factors from captive feeding experiments where the original prey consumed is known. We fed four species of fish (pollock, herring, salmon and sandlance) to two Steller sea lions (*Eumetopias jubatus*) in six 15-day experiments. All scats were collected and cleaned to obtain bones and other hard remains. We calculated the proportion of bones that were completely digested to derive bone-specific numerical correction factors. We also determined the number of scats that contained the bones of any individual fish and performed computer simulations to investigate levels of error and bias in reconstructing diet from hard remains with and without correction factors using three different biomass reconstruction indices. Simulations indicated that levels of bias varied between the four prey species and reconstruction indices. Consistently, large fish were overestimated while smaller more fragile-boned fish were underestimated. Simulation also showed that differences were also due to the number of identifiable structures and the size of the meal. Applying correction factors decreased bias and overall variability providing better certainty in the original diet. Our work emphasizes the importance of developing correction factors for other species of fish and for other species of pinnipeds to improve quantitative assessments of diet.